STRATEGY • DECISION-MAKING • GAME MATH

Do the Math

By Martin Shapiro

Advanced shuffleboard play requires a good grasp of the math of shuffleboard. Follow these basic math guidelines to excel in your competitive play.

CourtShuffleboard.com scope note: Examples in this article use common 75-point doubles and hammer-sequence conventions. Rules, formats, hammer sequences, court conditions, and local practices vary by organization and venue; adapt the concepts accordingly.

Drift

When learning the drifts of a court, you need to be able to judge how far a disc lands left or right of a target due to the drift. When making my practice shots, I estimate this distance in increments of quarter discs – one-quarter, one-half, three-quarters, one, one-and-a-half, etc. When I shoot for that same target during the game, I have a good measure of how far the drift will carry my cue disc and can adjust my aim left or right the same amount. If you use drift cards, mark them accordingly for reference during the game. Some players estimate the amounts in number of inches rather than fractions of a disc (a disc is 6 inches wide).

Calculating Who Will Win In Points

In a points game, it is a race to who gets 75 points first. In doubles play, each team gets two hammers in a row. When looking forward in a points game to the winning score, calculate these two hammers at an average value of 15 points – one 8 plus one 7. To calculate who will win the game based on the number of upcoming hammers, figure out how many hammers it will take for each team to achieve the winning point score. I call this the predictive winner of the game, which can change every frame or based on individual shots within a frame.

For example, at the very beginning of a 75-point doubles game, it will take 10 hammers to get to 75 (15 x 5 = 75). Then figure out which team will play ten hammers first. Since Black gets the first two hammers, Black will get to 10 hammers first. Theoretically, if all players play a perfect game, Black will win every time. (Consider that when deciding color if you win the lag for a third game – unless the court is clearly favoring one color over the other, choose black.)

Let's say the score is Y-48 B-52, with Head-Black shooting out. Calculate that Yellow needs four hammers to win and Black needs three hammers to win. Yellow has two hammers in the current round, then Black gets two hammers, then Yellow gets two hammers. So Yellow will get the four hammers it needs to win before Black gets the three hammers it needs, making Yellow the predictive winner even though Black is currently leading in points. But look at the same score, Y-48 B-52, with Foot-Black shooting out. In this case, Black will get the three hammers it needs to win before Yellow gets the four hammers it needs, making Black the predictive winner.

At any point in a game it is important to follow the scores and the number of hammers upcoming to calculate the predictive winner. This will help you determine your best strategy for the current frame or shot. Changing up your strategy is not solely dependent on the difference in scores between your team and your opponents. It depends more on who has the upcoming hammers and how many hammers each

team needs to win. This especially takes on importance once one team reaches 43 points or more, which is within four hammers (four scoring eights) of the win.

There is a much more in-depth treatment of this concept, specific to the 75-point doubles game, in the book Modular Shuffleboard by Wilbur L. Estes. He defines points brackets within the game which separate each advance towards the winning 75-point score. Each bracket is within 16 points (two 8-point hammers) of the next bracket. The brackets are: -5 to 10 points; 11 to 26 points; 27 to 42 points; 43 to 58 points; and 59 to 74 points. The game point is 75. The bottom limits of each bracket are -5, 11, 27, 43 and 59 – which are the only numbers you need to remember.

Using these brackets makes determining the predictive winner at any time in a game very easy, following these three rules:

- When play is at the head, if one team is in a higher bracket, that team is ahead (the predictive winner).
- When play is at the head, if both teams are in the same bracket, the team that has the hammer is ahead (the predictive winner).
- When play is at the foot, add the value of one hammer (8 points) to the team that has the hammer and then apply the same two rules as above.

For instance, if Yellow is out at the head and the score is 42Y to 42B, both teams are in the same bracket (27 or above, and below 43) and Black has the hammer so Black is ahead. But if the score is 43Y to 42B instead, then Yellow is in a higher bracket than Black so Yellow is ahead.

Using this Modular System, all you need remember are the bracket limits: -5, 11, 27, 43, 59. Use them to determine which team is ahead (the predictive winner). Then adjust your strategy accordingly:

- If ahead with the hammer, keep the board clear and score your hammer.
- If ahead without the hammer, keep the board clear and put your last disc above the point of the triangle as a block – even if the opposing team scores their hammers, you remain the predictive winner as long as you score your hammers as well.
- If behind, find a way to move up a bracket while keeping the opposing team from advancing a bracket – steal hammers, kitchen your opponent or score an extra disc or two - or at least keep the opposing team in the same bracket as you until it's your hammers.

(The book goes into great detail of the best strategy to use in each situation.)

Calculating Who Will Win In Frames

If you are playing a frame game, you need to consider any lost hammer as a change in the outcome of the game. In a doubles frame game, both teams will ultimately get an equal number of hammers. A lost hammer for your team means a lost game; a lost hammer for your opponents means you win. If you are ahead, you need only maintain the status quo to win; if behind, you must find a way to fix it.

Kitchening is much more important in frame games than in points games. You can't win by kitchening alone in a points game – you'll never make it to the points needed to win without advancing your score. But in a frame game, giving your opponents even one -10 can give you the game.

Once the frame game reaches eight hammers left in the game, four for each color (e.g. frame 9 of a 16-frame game), you must adjust your strategy based on where you stand in scores. If ahead, on your hammers keep the board clear to score your hammer. When it's not your hammer, play a defensive game: don't give your opponent any discs to kitchen, and favor blocking the board to stop their hammer over trying to create an opportunity to a score a hidden disc. If your opponent starts putting up kitchen bait, use a fast clear - don't try to kitchen their kitchen bait; keep your discs off the board even if it means leaving them an open board to score their hammer. If behind, be more aggressive: take riskier

shots to hide an extra scoring disc; use kitchen bait to try to catch up; and take the shot to kitchen them when they leave a disc on the board.

Points And Frames

If you are playing a match that is both points and frames you must play a blended strategy.

At the start of the game, if the number of frames to the end of the game gives you less hammers than what you would need to win in points, then follow a frame-game strategy in the beginning. For example, in a doubles game that is "16 frames or 75 points", you will only get 8 hammers for your team, which calculates out to 60 points (4 x 15 = 60), which is less than the 75 points needed win on points. Therefore, you should follow the frame-game strategy from the start, looking to score an extra disc or more, or to steal one of their hammers or more, to be ahead in points when the frames run out and win the game. You may need to switch to points-game strategy later on if you or your opponents get enough extra scoring discs to make reaching 75 points before the frames run out possible.

If the number of frames to the end of the game gives you the number of hammers you would need to win in points, then follow a points-game strategy from the beginning. For example, in a doubles game that is "20 frames or 75 points", you will get 10 hammers for your team, which calculates out to 75 points (5 x 15 = 75). Therefore, you can follow the points-game strategy from the start, looking to advance your points to 75 as quickly as possible. You may need to switch to a frame-game strategy later on if you and your opponents lose enough hammers that neither of you will likely make 75 points before the frames run out.

Once the game is down to four hammers left for each color, the frame-game strategy takes dominance unless either you or your opponent are at 43+ points. If either of you reaches 43+ points before the game is down to four hammers left for each color, points-game strategy remains most important.

When you and your opponents are both 43+ points and four or less hammers left for each color, keep careful track of both paths to win and follow the strategy that is more likely to get you the win. You will have to think on the fly of the effect of every shot on the two paths to the win. Be careful not to fall behind by following the strategy for one path but it risks putting you behind on the other.

Scoring Errors

There are two places scoring errors to your detriment can occur. The first is the count of the scoring discs on the board at the end of a frame. When you are at the shooting end, make sure you hear the frame score called out and ask if you don't – don't just let everyone make assumptions. If you are at the receiving end, if your opponent isn't calling out the score before collecting discs, you do it. You want to be sure there is agreement on the final score of the frame before it's too late to settle any disagreement. Ofttimes the score is obvious, and maybe calling it out isn't necessary. Better safe than sorry as your opponent may see it differently.

The second place errors occur is on the scoreboard. This is not at all uncommon. Make sure you look at the scoreboard at the end of every frame to check the math. Sometimes the numbers are added wrong. Sometimes the person keeping score misheard the numbers or misremembered. Sometimes they reverse the scores. The window to make corrections is limited, so check it carefully every frame.

Percentages

You will often hear the terms "percentage play" or "percentage shot". This isn't a purely math calculation. It really just means the shot with the highest chance of success. For example, if you have a choice on your hammer shot of shooting to clear your opponent's scoring eight or ten that is mostly

hidden by a guard or shooting for a score on the open side of the board, why take the riskier shot to clear? Scoring your own eight is just as valuable in points as clearing their eight, and nearly as valuable as clearing their ten.

You may think to yourself that you can clear them and roll to score your own, so you decide to take the riskier shot. But you should emphasize in your thinking what can go wrong with the lower percentage shot over the possible great outcome it can achieve. What if you glance off the guard? What if you don't get them clear? What if you glance into the kitchen? While for most shots you should take the best strategy shot, not worrying overly about the consequences of a miss, this isn't true for the low percentage shot, especially on the hammer where you don't have any more shots in the frame to fix something that went wrong.

There are times when making the low percentage shot is still your best choice, like when the extra points for your opponent gets them too close to game point. But most of the time, taking the higher percentage shot is your best choice. And don't be a dog with a bone – if you missed clearing their hidden scoring disc with one or two shots already, don't waste your hammer shot doing the same thing!

There are exceptions where you must take the risker low percentage shot. When your opponent has a scoring disc which gives them the points needed to win the game, or the points needed that allows their partner to win the game with the hammer in the next frame, then you must find a way to clear that disc!

Seven Or Eight

How important is making a hammer eight instead of a seven for that one extra point?

In a frame game, it is significant right from the start of the game. Any extra point going into the final frames of the game can serve to give you a great advantage.

In a points game, those extra points aren't as significant at the beginning because they rarely accumulate to enough extra points to change the total number of discs you need to score over the course of the game to win. But once you reach the 43+ points mark, those extra hammer points take on more importance as they may very well make a difference in who needs less hammers to win, you or your opponents. If you follow the Modular System, keeping track of the points brackets within the game, you need to be aware of when the extra point of an eight, or the two extra points of an eight for you and an eight for your partner, are needed to advance to the next bracket up.

In a combined game, "frames or points", the extra points may or may not make a difference in the end. Make them right from the start as long as you don't have to choose a riskier shot to do so (e.g., risking bumping your opponent into a score, or something else that makes it a lower percentage shot).

Mingling

In some tournaments such as Mingle Singles and Horse Collar, your score in each game is important not only for winning the game, but for carrying over your points for a tournament total. Playing a kitchen game may win you the game but your carry-over points are likely to be much lower than other players in the tournament, possibly costing you a win or place in the tournament at the end. Similarly, when the situation warrants, choose to score an extra disc or two in a frame over clearing when there is little extra risk to you. Keep in mind the whole view of the tournament – you aren't just competing against your opponent each game, you are competing against all the players entered in the tournament.